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THE STATUS OF GYROWEISIA IN NORTH AMERICA

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Gyroweisia has in fact no valid status anywhere. Limpricht¹ complained of the several names that Schimper had at different times applied to this genus, but did not perhaps take the trouble to verify his references. Thus I have been unable to find *Weisiopsis* published by Schimper as a genus, with priority, if Limpricht were right. Limpricht's source was presumably Schimper's own statement,² but this speaks only of a subgenus *Weisiopsis*. In the *Bryologia Europaea* I find no such name either as genus or subgenus under plate 28 or in the text referring to it, but only as a subgenus in the index of Vol. I, page VII, which is apparently from the later date of 1851. The case is different with *Weisiodon*, which was entirely adequately published as a genus³ and by all the rules of priority should supplant the later *Gyroweisia*. Its type-species was the *Weisia reflexa* of Bridel occurring in southern Europe and northern Africa. Schimper's reason for changing the name to *Gyroweisia* was the inclusion of the European *Gymnostomum tenue* of Schrader, which he rightly recognized to be closely related to the other, but which has no peristome teeth. Both have a prominent persistent annulus—hence the name *Gyroweisia*, *Weisiodon* being no longer appropriate. But it should be obvious that a generic name need not be a generic description, cannot in fact remain one with the growth of knowledge of forms and their natural relationships.⁴ Priority demands the retention of *Weisiodon*, if the genus itself is worthy of retention. As a matter of fact, like many others, it is not particularly well understood. Engler & Prantl's *Natürliche Pflanzenfamilien* includes in it for the first time a number of exotic species, and their figure taken from a portion of the plate of *Weisia reflexa* in *Bryologia Europaea* has inspired still further additions.

As to North America, the inclusion of this genus in its moss-flora rests in the first place upon number 21 of Drummond's *Musci Americani* named *Gymno-*

¹ Laubmoose I, 235. 1886.

² Corollarium, 9. 1855. In the light of the facts here developed the genus *Weisiopsis* recently proposed by Brotherus (Finsk. Vetensk. Soc. Förrhandl. 62: A. Nr. 9, 1921, according to reference; I have not seen the paper) would be valid so far as the name is concerned, but it seems questionable whether a name which has been the subject of controversy should be used again for a still different group.

³ Corollarium, 9. 1855.

⁴ Cf. THE BRYOLOGIST, XXIII, 30f. 1920.

stomum tenue by Drummond.⁵ Wilson in his critical notes on Drummond's first set⁶ suggested that this specimen might be *Gymnostomum calcareum*, and such in fact it appears to be. The two species have been much associated with one another, because their stems and leaves are so reduced by xerophytic conditions of growth that they closely resemble each other. Their capsules are however distinct, those of *Gyroweisia tenuis* being distinguished by a large persistent annulus. So persistent is this that it will usually be found even on old deoperculate capsules. I have not been able to find a trace of it on any of Drummond's capsules and have no doubt that they are those of *G. calcareum*, as Wilson took them to be. To confirm the identity I have also sought gametophyte characters. These are very hard to make out, so great is the reduction of the vegetative parts in both mosses. The stem of *G. tenuis* I find in section without central strand, as noted by Limpricht,⁷ while that of *G. calcareum* has a central strand with a layer of rather large cells surrounding it, as in *G. rupestre*. Drummond's specimens are not very favorable for this kind of investigation, but I think there is no question but that they have the stem-section of *G. calcareum*. The section of the leaf-costa has so little character in these reduced plants that I cannot regard it as conclusive, but I see nothing in Drummond's plant in this respect to separate it from *G. calcareum*. There is no satisfactory doubt that Drummond's Canadian specimen is *G. calcareum*, and the same is still more clearly true of other Canadian specimens referred by Macoun and Kindberg to *Gymnostomum tenue*, also of those referred to *Gymnostomum pusillum* Kindb. (*Gyroweisia pusilla* Broth.). I have also seen specimens from the Ottawa Herbarium labeled *Gyroweisia reflexa*, but they are also *G. calcareum*, except one which is a *Seligeria*. Confusion of the two species by European bryologists is apparently not infrequent; in fact the European specimen in the Ottawa Herbarium labeled *Gyroweisia tenuis*, collected by Artaria in northern Italy, is also *Gymnostomum calcareum*. Kindberg's *Gyroweisia linealifolia*⁸ from Switzerland is also according to Paris⁹ *Gymnostomum calcareum*. The *Gyroweisia tenuis* distributed by Holzinger in his exsiccati (No. 331) from Enfield Gorge, N. Y. proved to be a sterile specimen of the moss variously known as *Diphyscium foliosum* or *Webera sessilis*, the correction having already been made by Holzinger in his privately printed notes.

Only the most thorough-going monographical work with consideration of all related mosses of the world can justify and, having justified, properly delimit a genus *Weisiodon* Schimper. That the exotic species included by Brotherus (in *Natürliche Pflanzenfamilien*) are not those of most immediate relationship

⁵ Careful study of the literature concerning Drummond's collections (Cf., for example, Hooker, *Botanical Miscellany*, 1, 93. 1828; Hooker, *Journal of Botany*, 111, 433f. 1841) shows that he was himself responsible for the naming of his first set of American mosses, except in so far as certain new species are definitely accredited to Hooker.

⁶ Hooker, *Journal of Botany*, 111, 434. 1841.

⁷ *Laubmoose*, 1, 235. 1886.

⁸ *Rev. Bryol.*, XIX, 104. 1892.

⁹ *Index Bryol.*, ed. 2, 11, 293. 1904

I am convinced. *Gyroweisia Barbula* (Schwaegr.) Par. of the West Indies, Florida, Bermuda, etc., originally described as a *Gymnostomum*, has been passed hopelessly from genus to genus and its exact affinities are still unknown, further than that it is a tropical or subtropical representative of the *Pottiaceae* in the broad sense of Brotherus. *G. brevicaulis* (Hpe.) Broth. of the East Indies is a somewhat parallel phenomenon with peristome-teeth. Fleischer, whose sense for moss-relationships is good, has included it in *Didymodon*,¹⁰ but the latter as it appears in recent bryological works has long ceased to be a natural genus, if it indeed ever was one. *G. obtusifolia* (Hpe.) Broth. from Mexico is a plant in many ways suggesting relationship with the Mexican species of the genus *Globulina* C. M. But this genus has at present no acceptable status in the moss-system, as the Mexican and South American species comprising it are evidently not too closely related, nor are either clearly set off from the mass of pottiaceous forms. *G. barbulacea* (C. M.) Broth. from Mexico I have been permitted to see through the kindness of the director of the Botanical Garden at Berlin-Dahlem. The specimen was a single plant inserted in a split piece of mica and while affording a good idea of the peristome and capsule did not permit so clear a demonstration of the leaf-characters without the possibility of injury to the specimen. I was unable to identify the species with anything else known to me, but do not regard it as at all closely related with any of the other plants included under *Gyroweisia*.

On the other hand, mosses placed by Mrs. Britton and Mr. Williams in *Gyroweisia* seem to me to show a far better sense of natural relationship, if the genus can be extended beyond the two older species or should exist at all. Mrs. Britton's better judgment has, in literature, unfortunately been obscured by a new generic name of Cardot, so that her species appears as *Dactylhymenium Pringlei* (E. G. Britton) Cardot.¹¹ The species is Mexican; besides the original station at Chihuahua there is in the herbarium of the New York Botanical Garden an earlier specimen collected in 1875 by Dr. J. G. Schaffner in the Valley of Mexico, the specimen according to label having come as *No. 17* from the herbarium of A. Vigener. It may also be claimed for the United States flora on the basis of a specimen collected by Rusby in southwestern New Mexico (Grant County). Quite similar is the case of Mr. Williams' *Gyroweisia boliviana* from the South American Andes. In describing this species Mr. Williams compared it¹² with *Hyophila Lindigii* Hpe. (*Gyroweisia Lindigii* Broth.) from the Andes of Colombia, which is quite distinct, as Mr. Williams noted, in fact hardly congeneric. The relation of the South American and Mexican species to each other and of both to the moss generally known as *Didymodon tophaceus* (Brid.) Jur. should be studied further on the basis of the greatest possible amount of material. I am persuaded that it is at any rate a close one. The last mentioned species is widely distributed in western North America. It is quite out of its element in *Didymodon*, which even without it is all too heterogeneous, and it

¹⁰ Flore de Buitenzorg, V. I, 333. 1902.

¹¹ Rev. Bryol., XXXVI, 72. 1909.

¹² Bull. N. Y. Bot. Gard., III, 117f. 1903.

was still less at home in *Trichostomum*. It has with us sometimes been confused with *Gymnostomum* or *Hymenostylium*. Holzinger's *b* under No. 29 of his *exsiccati* is, for example, this species and not *Gymnostomum curvirostrum scabrum* as labeled. Kindberg's *Gymnostomum platyphyllum* (*Hymenostylium platyphyllum* Broth.) is a synonym of *Didymodon tophaceus*. I am strongly disposed to believe that *Didymodon tophaceus*, which is also of European distribution, is the highest link in a chain of naturally related forms starting with the two (or three?) European species of *Weisiodon* (*Gyroweisias*) and including as intermediate forms of whatever rank the Mexican *Haplohymenium* (*Gyroweisias*) and the Bolivian *Gyroweisias*, whereby it may be remarked that the others can as well or better be understood as secondary phylogenetic developments, by reduction, from the higher type of the more widely distributed *Didymodon tophaceus*.

As my conclusions are essentially negative, I shall not discuss in further detail the characters of the various species referred to, but leave my results as a suggestion to the future monographer, who among this as among many other groups of mosses is at present more needed than the species or genus-maker. To recapitulate briefly, my conclusions are:

1. *Gyroweisias* Schimper, 1876, is antedated by *Weisiodon* Schimper, 1855, and should be relegated to synonymy.

2. *Gyroweisias tenuis* does not occur in North America, reports of it being due to errors of identification.

3. *Gyroweisias Barbula*, *G. barbulacea*, and *G. obtusifolia* from tropical or subtropical North America do not belong in this genus (*Weisiodon*).

4. I have expressed the subjective opinion, backed by no detailed statement of facts, that if *Weisiodon* is to be extended beyond the original European (and North African) application, it should most naturally include the moss known as *Didymodon tophaceus* and related forms.

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A PRELIMINARY REPORT ON THE LICHENS OF WESTERN PENNSYLVANIA

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In connection with my candidacy for the degree of Master of Science in the University of Pittsburgh, my thesis was written on the Lichens of Western Pennsylvania. The following annotated list presents briefly the main results of this study.¹

¹ An examination of Mr. Giardini's list emphasizes that the lichen flora of the region embraced is very imperfectly known. Many of the species are represented by but a single collection and one can but wonder how many more species are here but have so far been overlooked. It is not at all improbable that, with the wanton denudation and waste of much of our area that was once densely forested, the lichen flora is radically changed and probably is actually increasing in number of species. A large number of the Lichens are preeminently pioneers in denuded or bare habitats, such as bare soil and rock, and it is certain that the extent of this kind of habitat at least has been much enlarged. Our *Cladonia* flora, at least, has a much more extended area suitable for it